

US-PAT-NO:

6299307

DOCUMENT-IDENTIFIER: US 6299307 B1

TITLE: Eye tracking device for laser eye surgery using corneal margin detection

----- KWIC -----

Detailed Description Text - DETX (12):

A synchronous stepper motor (not shown) may be used as the drive for spinning the end of distal fiber section 60 around trajectory 70, although other suitable drives may be used with the present invention. In addition, a second drive may be used to initially calibrate the spin trajectory of the optical fiber so that it is concentric with the limbus 10 of the eye (further details of this method are discussed below). In one embodiment, this calibration drive includes a radius motor drive 80 having a high ratio mechanical reductor, such as a worm gear 82, and a mechanical coupling 86 for coupling a DC motor 84 to the end of the optical fiber 60. When the desired radius is achieved, the DC motor 84 can be removed and the worm gear 82 will maintain the radius constant during the procedure.

Detailed Description Text

DERWENT-ACC-NO: 2002-657280

DERWENT-WEEK: 200310

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TITLE: Positive displacement shoe and slat sorter apparatus,  
has primary and secondary units chosen from one of a  
synchronous and non synchronous linear motor systems

----- KWIC -----

Basic Abstract Text - ABTX (1):

NOVELTY - The sorter assembly comprises slats (20) defining an endless web (12), with the upper run (13) defining a conveying surface. Pusher shoes (26) glide along at least some of the slats to laterally displace articles on the conveying surface.

Basic Abstract Text - ABTX (2):

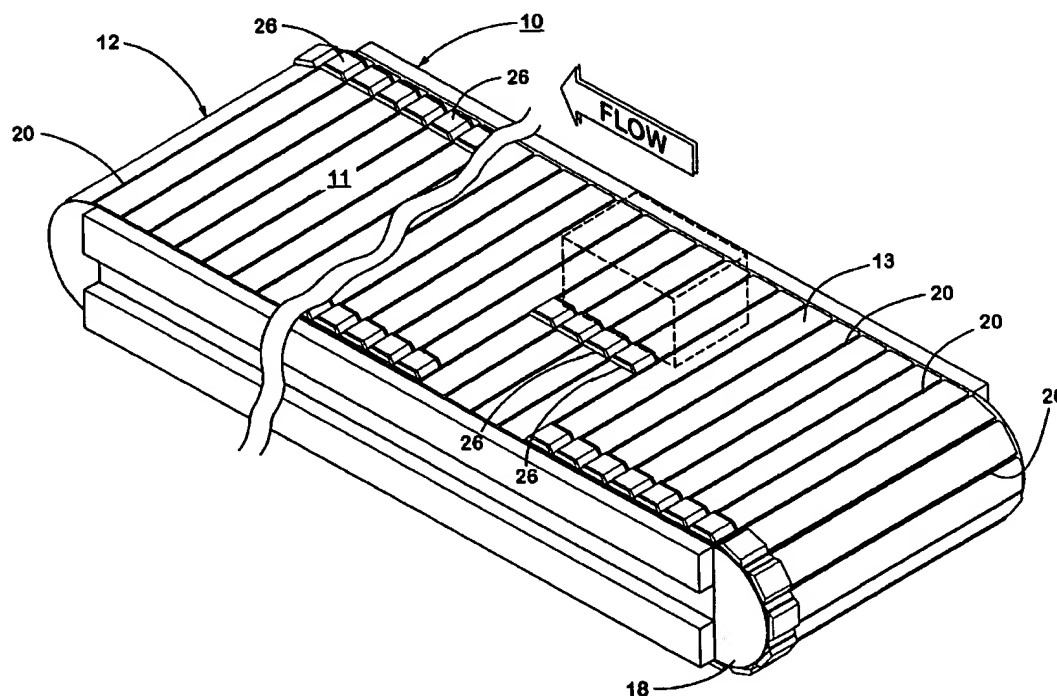
DETAILED DESCRIPTION - A secondary unit is included for defining a number of linear motor secondaries at the slats. Primary units are used for producing thrust in the secondary units and thus propelling the web. A control system controls the primary unit. The primary and secondary units are chosen from one of a synchronous and a non synchronous linear motor system. The primary units are located between the upper and lower runs of the web, and the secondary units may include magnet plates in the interiors of the slats. A web sensor



US 20020096417A1

(19) **United States**(12) **Patent Application Publication** (10) Pub. No.: **US 2002/0096417 A1**  
Veit et al. (43) Pub. Date: **Jul. 25, 2002**(54) **POSITIVE DISPLACEMENT SHOE AND  
SLAT SORTER APPARATUS AND METHOD**(76) Inventors: **Frank W. Veit**, Spring Lake, MI (US);  
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Ada, MI (US)**Related U.S. Application Data**(63) Non-provisional of provisional application No.  
60/236,230, filed on Sep. 28, 2000. Non-provisional  
of provisional application No. 60/278,892, filed on  
Mar. 26, 2001.**Publication Classification**(51) Int. Cl.<sup>7</sup> ..... **B65G 47/88**  
(52) U.S. Cl. .... **198/370.02**Correspondence Address:  
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**GRAND RAPIDS, MI 49588-8695 (US)**(57) **ABSTRACT**

A positive displacement sorter apparatus and method includes providing a plurality of slats being interconnected in an endless web, an upper run of the web defining a conveying surface, and a plurality of pusher shoes gliding along at least some of the slats to laterally displace articles on the conveying surface. A linear motor system is provided to propel the web and includes a plurality of linear motor secondaries at the slats and at least one primary for propelling the secondaries. A control system controls the primaries.

(21) Appl. No.: **09/968,742**  
(22) Filed: **Sep. 28, 2001**

US-PAT-NO: 6376940

DOCUMENT-IDENTIFIER: US 6376940 B1

TITLE: Drive motor and drive apparatus for a molding machine

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Detailed Description Text - DETX (14):

An intermediate portion of the shaft 3A is used to form a rotary motor section Mr for rotating the shaft 3. The rotary motor section Mr includes the above-described stator 41 and a rotor (magnet rotor) 40. The rotor 40 is fixed to the intermediate portion of the shaft 3 and is opposed to the stator 41. The rotor 40 and the stator 41 constitute a synchronous servomotor. In the present embodiment, the stator 41 has stator coils 41c wound around core portions 41a provided at regular circumferential intervals, and the rotor 40 has a plurality of magnets 40m disposed in the circumferential direction.

US-PAT-NO: 6256893

DOCUMENT-IDENTIFIER: US 6256893 B1

**\*\*See image for Certificate of Correction\*\***

TITLE: Electric vehicle power steering system with a position  
calibrating device

----- KWIC -----

Detailed Description Text - DETX (9):

In this example, the servo motor 56 is of the brush-less synchronous type having a permanent magnet rotor and a rotor position detector in the form of an

angle sensor (not shown). This integrated angle sensor makes it possible to rotate the motor rotor as well as the steerable wheel 50 for desired angles within a certain predetermined safety interval. However, a decisive condition

for operating the steering system within specific safety limits programmed into

the control unit is a correct identification of the straight-ahead position of the wheel 50 and a subsequent calibration of the control unit 58. Another condition is to get safe and correct indications of the extreme ends of the predetermined steering interval.

US-PAT-NO: 5960936

DOCUMENT-IDENTIFIER: US 5960936 A

TITLE: Digital precision positioning system

----- KWIC -----

Detailed Description Text - DETX (27):

Each gear 76 may be rotated in one direction or the other on its shaft 64 by a meshing gear 86 which rotates with the shaft 88a of a synchronous pulsed reversible servo motor 88 mounted to the machine frame 65. Each motor 88 may rotate its gear 76 faster or slower than roller 12 which will move the corresponding wedge 74 in or out to adjust the conicalness of the corresponding end of roller 12.

US-PAT-NO: 5757161

DOCUMENT-IDENTIFIER: US 5757161 A

TITLE: Apparatus and method for limiting the speed of an  
electric motor

----- KWIC -----

Detailed Description Text - DETX (3):

Referring to FIG. 1, motor 1 is a synchronous motor, and in this embodiment is an AC servo motor driven by a three-phase (U, V, W) current used for the power supply for an electric car. Any other typ

US-PAT-NO: 5721546

DOCUMENT-IDENTIFIER: US 5721546 A

TITLE: Encoder unit for providing to a servo motor control unit  
position data which is adjusted to account for processing  
delays

----- KWIC -----

Brief Summary Text - BSTX (15):

When a synchronous motor is used as the servo motor, the magnetic pole  
position data of the motor is required for the 3-phase PWM voltage  
generating  
means 18 and the 3-phase AC.fwdarw

US-PAT-NO: 5648103

DOCUMENT-IDENTIFIER: US 5648103 A

TITLE: Ejector apparatus

----- KWIC -----

Detailed Description Text - DETX (20):

The servomotor 102 includes a stator 105 fixed to a motor frame 104, a coil 106 fixed to the stator 105, and a rotor 107 disposed inside the stator 105 with a small clearance therebetween. The rotor 107 can be rotated by supplying a current to the coil 106. The motor frame 104 is composed of a front plate 104a, a rear plate 104b, a side plate 104c, and clamp rods 138 for connecting the front plate 104a and the rear, plate 104b for assembling the motor frame 104. Any types of motors such as an induction motor and a synchronous motor can be used as the servomotor 102.

US-PAT-NO: 5535999

DOCUMENT-IDENTIFIER: US 5535999 A

TITLE: Apparatus for rotating a flat article through a desired angular orientation

----- KWIC -----

Detailed Description Text - DETX (38):

An energy source 124 provides rotating mechanical energy to be coupled to the drive sprockets 192 and 194. In a typical manufacturing environment, the equipment of the first manufacturing step, the bag rotating machine 100, and the equipment of the second manufacturing step, all must operate synchronously. Accordingly, in a commercial embodiment of the invention, the energy source 124 is preferably a synchronous drive of the servo type. However, dependi

US-PAT-NO: 5113824

DOCUMENT-IDENTIFIER: US 5113824 A

TITLE: Adjusting device

----- KWIC -----

Brief Summary Text - BSTX (3):

In a known adjusting device of this type, a so-called throttle valve adjuster (German Patent 28 12 292), the servomotor is embodied as a two-phase synchronous motor with a permanent magnet rotor. The two winding phases are wound on the

US-PAT-NO: 4777010

DOCUMENT-IDENTIFIER: US 4777010 A

TITLE: Rod drive control system for nuclear reactors

----- KWIC -----

Detailed Description Text - DETX (3):

As well known, the stepping motor is a kind of a synchronous motor in which a rotor rotates in synchronism with the current switching in a stator winding and produces a torque only at the synchronous speed. Since the rotor is loaded with inertia, its starting speed is limited to the maximum allowable starting speed determined by the magnitude of the inertia and the output torque. In accelerating the motor to a certain speed, the motor steps out unless the acceleration is set up at a value less than a predetermined one. This state of the stepping motor is illustrated in FIG. 1.

Detailed Description

US-PAT-NO: 6058726

DOCUMENT-IDENTIFIER: US 6058726 A

TITLE: Damper

----- KWIC -----

Abstract Text - ABTX (1):

A damper comprises two cold air inlets through which a fluid flows, two gate plates which open and close the two cold air inlets and a drive unit for driving the two gate plates. The drive unit is installed between the two cold air inlets to open and close the gate plates. The drive unit operates to control the fluid flow. In a particular form, the damper is installed in a refrigerator for opening and closing two cold air inlets of the refrigerator.

Brief Summary Text - BSTX (3):

The present invention relates to a damper which actuates gate plates such as baffles for cold air inlets using a motor as a driving source. It specifically relates to a damper suited to control cold air distribution in a refrigerator.

Brief Summary Text - BSTX (23):

Some popular dampers use a motor such as a DC motor or stepping motor, not a synchronous motor, as a driving source. Many of these motors do not use a position sensor which increases cost but control parameters such as the active

US-PAT-NO: 6049187

DOCUMENT-IDENTIFIER: US 6049187 A

TITLE: Speed control for brushless repulsion motor

----- KWIC -----

Detailed Description Text - DETX (19):

The repulsion stepping motor 60 can be used as a synchronous variable speed motor by controlling the rate or frequency by which the LED array 71-73 are switched on and off. In this case, the control or amplifier 74 controls the power to the LED arrays 71-73 which may be in the order of milliwatts and the motor 60 can develop hundreds of watts. In typical present day stepping motors, all of the motor power passes through the control electronics.

Detailed Descriptio

US-PAT-NO: 5703455

DOCUMENT-IDENTIFIER: US 5703455 A

TITLE: Control device for a stepping motor included in an  
electronic apparatus

----- KWIC -----

Brief Summary Text - BSTX (4):

Generally, the drive source for driving the carriage and the drive source for driving the conveyor rollers are implemented by stepping motors. To rotate a stepping motor, phase drive signals synchronous to drive pulses are input to motor drive means, as well known in the art. Slue-up contro

US-PAT-NO: 5689994

DOCUMENT-IDENTIFIER: US 5689994 A

TITLE: Actuator and actuator system

----- KWIC -----

Detailed Description Text - DETX (38):

A damper 210 is mounted on a side surface of the gear box 194 remote from the electric motor 172 for dampening shocks produced when the table block 178 hits the motor pulley unit 174. The gear box 194 and the electric motor 172 are preferably integral with each other to keep the first and second bevel gears 198, 206 in accurate mesh with each other. The electric motor 172 should preferably comprise a servomotor or a stepping motor for accurate synchronous operation and positional control.

Detailed Description

US-PAT-NO: 5442599

DOCUMENT-IDENTIFIER: US 5442599 A

TITLE: Impulse clock system

----- KWIC -----

Detailed Description Text - DETX (51):

Although preferred embodiments of the invention have been illustrated and described in detail it will be apparent that various changes may be made in the disclosed embodiments without departing from the scope or spirit of the invention. For example, although impulse clock systems have been described in the examples given, the same technology and design can be utilized in an attendance recorder, a parking gate, a time stamp, or an elapsed time indicator system with appropriate modification of the drive mechanism and, for further example, although stepper motors have been described in the examples given, synchronous motor drives or other motor drives; i.e., DC servo, DC and AC non-synchronous, can also be used.

US-PAT-NO: 5434492

DOCUMENT-IDENTIFIER: US 5434492 A

TITLE: System for controlling a one pole synchronous motor in accordance with a measured back EMF

----- KWIC -----

Brief Summary Text - BSTX (3):

The present invention relates to synchronous motors, such as a stepping motor, and a sensor-free system for controlling such a motor. Such a control system uses the back-electromotive forces generated in the motor coils in order to provide information indicating the position of the motor.

Brief Summary Text - BSTX (14):

An object of the invention is also to provide a particularly simple system for controlling, in self-switching mode, or in stepping mode, a synchronous motor connected as above described.

Detailed Description Text - DETX (10):

A one-pole stepping motor is a synchronous motor having the same four-coil structure as the motor of FIG. 1, except that it includes a rotor with a large number of N and S pole pairs. When the rotation of the stepping motor is controlled, the motor rotates by one step instead of rotating 90.degree.. Given this similarity between stepping motors and synchronous motors, stepping

US-PAT-NO: 5150649

DOCUMENT-IDENTIFIER: US 5150649 A

TITLE: Ink pot device for printing machine

----- KWIC -----

Abstract Text - ABTX (3):

An ink pot device for a printing machine, comprising a stepping motor or a synchronous motor for driving said adjust piece, in which ink keys are driven forwardly and backwardly to adjust the supply rates of ink, and

Detailed Description Text - DETX (4):

This ink pot device is enclosed by ink gate roller 2 at its front side of device body 1, a pair of ink dams 3, 3' at both left and right sides and sloped bottom plate 4 at its rear and bottom face. On device body 1, there is a funnel ink pot 7 provided with an ink outlet slit 6 between front fringe 5 of said bottom plate 4 and the outer face of ink gate roller 2. Said device body 1 is provided with a plurality of ink keys 8 whose tops cross the lower face of said ink outlet slit 6 in such a manner as closely located to front fringe 5 of bottom plate 4 while being located closely to or in contact with the outer face of ink gate roller 2, and a board 9 that sandwiches these ink keys 8 in a closely located and contactly operable manner.

Detailed Description Text - DETX (39):

US-PAT-NO: 4920782

DOCUMENT-IDENTIFIER: US 4920782 A

TITLE: Press drive

----- KWIC -----

Detailed Description Text - DETX (17):

It is important to determine this point as precisely as possible, the precision requirements for the upper "dead center" or reversal point being less

stringent than those for the bottom dead center position shown in FIG. 1.

For

this purpose, the motor 9 has a rotor whose position is determined by the particular number of pulses which are fed to the motor 9. Such motors are either stepping motors or are synchronous or asynchronous motors--which are

preferred owing to the better drive characteristics.

Detailed Description

f the object, the leading and trailing edges, and the height of the object.

Detailed Description Text - DETX (11):

Operatively linked to the controller 53 of the sorting belt driving mechanism 52 is the input conveyor driving mechanism 54. The input conveyor driving mechanism 54 preferably includes a variable frequency drive and an AC motor. However, other motor and motor control arrangements are not beyond the scope of the present invention. Other motor arrangements for the input conveyor driving mechanism include, but are not limited to, programmable servo motors, AC motors coupled to a programmable logic controller, motors such as universal, induction, and synchronous motors (such as stepper motors), and other like motors. The input conveyor driving mechanism 54 drives the upstream conveyor 24 at a constant speed, and provides a signal representative of such speed to the controller 53. Similarly, the output conveyors 28, 30, 32 are operated by output conveyor driving mechanisms 56.

Detailed Description Text - DETX (12):

FIG. 4 illustrates a perspective side view of the sorting system 20 of the present invention. Speci